1,125°. Thus one derives that the paramount condition of the production of the maximum of combustible gas in the gasification of carbon is that the temperature in the reaction zone should never sink below 1,125°.

The temperature can exercise yet another influence on the composition of the gas, in that it can cause inter-reaction' between the different species of gases. Thus a mixture of carbon monoxide, hydrogen, nitrogen, and carbonic acid, i.e., pure steam-air gas, only will not change its composition if it is very highly heated. If, however, this steam-air gas is mixed with water-vapour, derived from the hygroscopic water of the fuel, or which has passed through the reaction zone undecomposed, so it is possible for this to react with the carbon monoxide of the steam-air gas somewhat according to the formula CO + H20 = C02+2H, so that combustible CO is capable of being converted into the worthless C02. Of course, thereby hydrogen will be formed, and in an amount which is equivalent to the carbon monoxide disappeared. The reaction before mentioned can, according to Engler and Grimm (vide Fischer, p. 204), commence between 250° and 300°, but at such low temperatures is of no importance ; but at higher temperatures, as the following example, taken from the same source, illustrates, can become, under certain circumstances, quite marked. In the experiments carbon monoxide was passed with steam through a porcelain tube, heated up to about 954°, and gas of the following composition was obtained:—

TABLE C.

	Composition of Gas. 'Volumes per cent.		After passing through Tube.		After addition Steam.
	After half an hour's action.	After 2 hours' action.	Twice.	20 times.	
	I.	II.	III.	IV.	V.
	Per cent.	Per cent.	Per cent.	Per cent.	• Per cent.
C02	15-2	22-8	16-0	18-8	39-7
CO	68-5	51-4	66-2	56-4	18-3
H	14-0	21-9	15-3	23-0	38-7
N	2-3	3-9	2-5	2-8	3-3